

09/807675

Practitioner's Docket No. UDL 2 0011**CHAPTER II**

Preliminary Classification:

Proposed Class:

Subclass:

NOTE: "All applicants are requested to include a preliminary classification on newly filed patent applications. The preliminary classification, preferably class and subclass designations, should be identified in the upper right-hand corner of the letter of transmittal accompanying the application papers, for example 'Proposed Class 2, subclass 129.'" M.P.E.P., § 601, 7th ed.

**TRANSMITTAL LETTER
TO THE UNITED STATES ELECTED OFFICE (EO/US)**

(ENTRY INTO U.S. NATIONAL PHASE UNDER CHAPTER II)

INTERNATIONAL APPLICATION NO	INTERNATIONAL FILING DATE	PRIORITY DATE CLAIMED
<u>PCT/GB99/03377</u>	<u>11 OCT 1999</u>	<u>17 OCT 1998</u>
TITLE OF INVENTION		
<u>VERIFICATION METHOD</u>		
APPLICANT(S)		
<u>ELLIOTT, Nicholas P., et al.</u>		

Box PCT
Assistant Commissioner for Patents
Washington D.C. 20231
ATTENTION: EO/US

CERTIFICATION UNDER 37 C.F.R. § 1.10*

(Express Mail label number is mandatory.)

(Express Mail certification is optional.)

I hereby certify that this Transmittal Letter and the papers indicated as being transmitted therewith is being deposited with the United States Postal Service on this date April 17, 2001, in an envelope as "Express Mail Post Office to Addressee" Mailing Label Number EL 852783340 US, addressed to the Assistant Commissioner for Patents, Washington, D.C. 20231.

Georgeen B. George

(type or print name of person mailing paper)

Georgeen B. George
Signature of person mailing paper

WARNING: Certificate of mailing (first class) or facsimile transmission procedures of 37 C.F.R. § 1.8 cannot be used to obtain a date of mailing or transmission for this correspondence.

***WARNING:** Each paper or fee filed by "Express Mail" must have the number of the "Express Mail" mailing label placed thereon prior to mailing. 37 C.F.R. § 1.10(b).

"Since the filing of correspondence under § 1.10 without the Express Mail mailing label thereon is an oversight that can be avoided by the exercise of reasonable care, requests for waiver of this requirement will not be granted on petition." Notice of Oct. 24, 1996, 60 Fed. Reg. 56,439, at 56,442.

NOTE: To avoid abandonment of the application, the applicant shall furnish to the USPTO, not later than 20 months from the priority date: (1) a copy of the international application, unless it has been previously communicated by the International Bureau or unless it was originally filed in the USPTO; and (2) the basic national fee (see 37 C.F.R. § 1.492(a)). The 30-month time limit may not be extended 37 C.F.R. § 1.495.

WARNING: Where the items are those which can be submitted to complete the entry of the international application into the national phase are subsequent to 30 months from the priority date the application is still considered to be in the international state and if mailing procedures are utilized to obtain a date the express mail procedure of 37 C.F.R. § 1.10 must be used (since international application papers are not covered by an ordinary certificate of mailing—See 37 C.F.R. § 1.8.

NOTE: Documents and fees must be clearly identified as a submission to enter the national state under 35 U.S.C. § 371 otherwise the submission will be considered as being made under 35 U.S.C. § 111. 37 C.F.R. § 1.494(f).

I. Applicant herewith submits to the United States Elected Office (EO/US) the following items under 35 U.S.C. § 371:

- a. ☒ This express request to immediately begin national examination procedures (35 U.S.C. § 371(f)).
- b. ☒ The U.S. National Fee (35 U.S.C. § 371(c)(1)) and other fees (37 C.F.R. § 1.492) as indicated below:

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JC05 Rec'd PCT/PTO 17 APR 2001

(Rel.85-11/00 Pub.605)

FORM 13-18

13-161

2. Fees

CLAIMS FEE	(1) FOR	(2) NUMBER FILED	(3) NUMBER EXTRA	(4) RATE	(5) CALCULATIONS
<input checked="" type="checkbox"/> *	TOTAL CLAIMS	14 - 20 =	0	× \$18.00 =	\$ 0
	INDEPENDENT CLAIMS	3 - 3 =	0	× \$80.00 =	0
	MULTIPLE DEPENDENT CLAIM(S) (if applicable) + \$270.00				
BASIC FEE**	<input type="checkbox"/> U.S. PTO WAS INTERNATIONAL PRELIMINARY EXAMINATION AUTHORITY Where an international preliminary examination fee as set forth in § 1.482 has been paid on the international application to the U.S. PTO: <input type="checkbox"/> and the international preliminary examination report states that the criteria of novelty, inventive step (non-obviousness) and industrial activity, as defined in PCT Article 33(1) to (4) have been satisfied for all the claims presented in the application entering the national stage (37 C.F.R. § 1.492(a)(4)) \$100.00 <input type="checkbox"/> and the above requirements are not met (37 C.F.R. § 1.492(a)(1)) \$690.00 <input checked="" type="checkbox"/> U.S. PTO WAS NOT INTERNATIONAL PRELIMINARY EXAMINATION AUTHORITY Where no international preliminary examination fee as set forth in § 1.482 has been paid to the U.S. PTO, and payment of an international search fee as set forth in § 1.445(a)(2) to the U.S. PTO: <input type="checkbox"/> has been paid (37 C.F.R. § 1.492(a)(2)) \$710.00 <input type="checkbox"/> has not been paid (37 C.F.R. § 1.492(a)(3)) \$1000.00 <input checked="" type="checkbox"/> where a search report on the international application has been prepared by the European Patent Office or the Japanese Patent Office (37 C.F.R. § 1.492(a)(5)) \$860.00				860
	Total of above Calculations				= 860
SMALL ENTITY	Reduction by 1/2 for filing by small entity, if applicable. Affidavit must be filed also. (note 37 C.F.R. § 1.9, 1.27, 1.28)				- 430
	Subtotal				430
	Total National Fee				\$ 430
	Fee for recording the enclosed assignment document \$40.00 (37 C.F.R. § 1.21(h)). (See Item 13 below). See attached "ASSIGNMENT COVER SHEET".				
TOTAL	Total Fees enclosed				\$ 430

*See attached Preliminary Amendment Reducing the Number of Claims.

JCO5 Rec'd PCT/PTO

17 APR 2001

- ☒ Attached is a ☒ check ☐ money order in the amount of \$ 430
- ☒ Authorization is hereby made to charge the amount of \$ _____
- ☒ to Deposit Account No. 06-0308
- ☐ to Credit card as shown on the attached credit card information authorization form PTO-2038.

WARNING: Credit card information should **not** be included on this form as it may become public.

- ☒ Charge any additional fees required by this paper or credit any overpayment in the manner authorized above.

A duplicate of this paper is attached.

****WARNING:** "To avoid abandonment of the application the applicant shall furnish to the United States Patent and Trademark Office not later than the expiration of 30 months from the priority date: * * * (2) the basic national fee (see § 1.492(a)). The 30-month time limit may not be extended." 37 C.F.R. § 1.495(b).

WARNING: If the translation of the international application and/or the oath or declaration have not been submitted by the applicant within thirty (30) months from the priority date, such requirements may be met within a time period set by the Office. 37 C.F.R. § 1.495(b)(2). The payment of the surcharge set forth in § 1.492(e) is required as a condition for accepting the oath or declaration later than thirty (30) months after the priority date. The payment of the processing fee set forth in § 1.492(f) is required for acceptance of an English translation later than thirty (30) months after the priority date. Failure to comply with these requirements will result in abandonment of the application. The provisions of § 1.136 apply to the period which is set. Notice of Jan. 3, 1993, 1147 O.G. 29 to 40.

3. ☒ A copy of the International application as filed (35 U.S.C. § 371(c)(2)):

NOTE: Section 1.495 (b) was amended to require that the basic national fee and a copy of the international application must be filed with the Office by 30 months from the priority date to avoid abandonment. "The International Bureau normally provides the copy of the international application to the Office in accordance with PCT Article 20. At the same time, the International Bureau notifies applicant of the communication to the Office. In accordance with PCT Rule 47.1, that notice shall be accepted by all designated offices as conclusive evidence that the communication has duly taken place. Thus, if the applicant desires to enter the national stage, the applicant normally need only check to be sure the notice from the International Bureau has been received and then pay the basic national fee by 30 months from the priority date." Notice of Jan. 7, 1993, 1147 O.G. 29 to 40, at 35-36. See item 14c below.

- a. ☐ is transmitted herewith.
- b. ☐ is not required, as the application was filed with the United States Receiving Office.
- c. ☒ has been transmitted
- i. ☒ by the International Bureau.
Date of mailing of the application (from form PCT/1B/308):
27 April 2000 (27.04.00)
- ii. ☐ by applicant on _____ (Date)

4. ☒ A translation of the International application into the English language (35 U.S.C. § 371(c)(2)):

- a. ☐ is transmitted herewith.
- b. ☒ is not required as the application was filed in English.
- c. ☐ was previously transmitted by applicant on _____ (Date)
- d. ☐ will follow.

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5. ☒ Amendments to the claims of the International application under PCT Article 19 (35 U.S.C. § 371(c)(3)):

NOTE: The Notice of January 7, 1993 points out that 37 C.F.R. § 1.495(a) was amended to clarify the existing and continuing practice that PCT Article 19 amendments must be submitted by 30 months from the priority date and this deadline may not be extended. The Notice further advises that: "The failure to do so will not result in loss of the subject matter of the PCT Article 19 amendments. Applicant may submit that subject matter in a preliminary amendment filed under section 1.121. In many cases, filing an amendment under section 1.121 is preferable since grammatical or idiomatic errors may be corrected." 1147 O.G. 29-40, at 36.

- a. ☐ are transmitted herewith.
- b. ☐ have been transmitted
 - i. ☐ by the International Bureau.
Date of mailing of the amendment (from form PCT/1B/308):

 - ii. ☐ by applicant on _____. (Date)
- c. ☒ have not been transmitted as
 - i. ☒ applicant chose not to make amendments under PCT Article 19.
Date of mailing of Search Report (from form PCT/ISA/210.):
10 FEB 2000
 - ii. ☐ the time limit for the submission of amendments has not yet expired.
The amendments or a statement that amendments have not been made will be transmitted before the expiration of the time limit under PCT Rule 46.1.

6. ☒ A translation of the amendments to the claims under PCT Article 19 (38 U.S.C. § 371(c)(3)):

- a. ☐ is transmitted herewith.
- b. ☐ is not required as the amendments were made in the English language.
- c. ☒ has not been transmitted for reasons indicated at point 5(c) above.

7. ☒ A copy of the international examination report (PCT/IPEA/409)

- ☒ is transmitted herewith.
- ☐ is not required as the application was filed with the United States Receiving Office.

8. ☒ Annex(es) to the international preliminary examination report

- a. ☒ is/are transmitted herewith.
- b. ☐ is/are not required as the application was filed with the United States Receiving Office.

9. ☒ A translation of the annexes to the international preliminary examination report

- a. ☐ is transmitted herewith.
- b. ☒ is not required as the annexes are in the English language.

10. ☒ An oath or declaration of the inventor (35 U.S.C. § 371(c)(4)) complying with 35 U.S.C. § 115

- a. ☐ was previously submitted by applicant on _____
Date
- b. ☐ is submitted herewith, and such oath or declaration
- i. ☐ is attached to the application.
- ii. ☐ identifies the application and any amendments under PCT Article 19 that were transmitted as stated in points 3(b) or 3(c) and 5(b); and states that they were reviewed by the inventor as required by 37 C.F.R. § 1.70.
- c. ☒ will follow.

II. Other document(s) or information included:

11. ☒ An International Search Report (PCT/ISA/210) or Declaration under PCT Article 17(2)(a):

- a. ☐ is transmitted herewith.
- b. ☒ has been transmitted by the International Bureau.
Date of mailing (from form PCT/IB/308): 27 April 2000.
- c. ☐ is not required, as the application was searched by the United States International Searching Authority.
- d. ☐ will be transmitted promptly upon request.
- e. ☐ has been submitted by applicant on _____
Date

12. ☒ An Information Disclosure Statement under 37 C.F.R. §§ 1.97 and 1.98:

- a. ☐ is transmitted herewith.
Also transmitted herewith is/are:
- ☐ Form PTO-1449 (PTO/SB/08A and 08B).
- ☐ Copies of citations listed.
- b. ☒ will be transmitted within THREE MONTHS of the date of submission of requirements under 35 U.S.C. § 371(c).
- c. ☐ was previously submitted by applicant on _____
Date

13. ☐ An assignment document is transmitted herewith for recording.

A separate ☐ "COVER SHEET FOR ASSIGNMENT (DOCUMENT) ACCOMPANYING NEW PATENT APPLICATION" or ☐ FORM PTO 1595 is also attached.

14. ☒ Additional documents:
- a. ☐ Copy of request (PCT/RO/101)
 - b. ☐ International Publication No. _____
 - i. ☐ Specification, claims and drawing
 - ii. ☐ Front page only
 - c. ☒ Preliminary amendment (37 C.F.R. § 1.121)
 - d. ☐ Other
- _____
- _____
- _____
15. ☒ The above checked items are being transmitted
- a. ☒ before 30 months from any claimed priority date.
 - b. ☐ after 30 months.
16. ☐ Certain requirements under 35 U.S.C. § 371 were previously submitted by the applicant on _____, namely:
- _____
- _____
- _____
- _____

AUTHORIZATION TO CHARGE ADDITIONAL FEES

WARNING: Accurately count claims, especially multiple dependant claims, to avoid unexpected high charges if extra claims are authorized.

NOTE: "A written request may be submitted in an application that is an authorization to treat any concurrent or future reply, requiring a petition for an extension of time under this paragraph for its timely submission, as incorporating a petition for extension of time for the appropriate length of time. An authorization to charge all required fees, fees under § 1.17, or all required extension of time fees will be treated as a constructive petition for an extension of time in any concurrent or future reply requiring a petition for an extension of time under this paragraph for its timely submission. Submission of the fee set forth in § 1.17(a) will also be treated as a constructive petition for an extension of time in any concurrent reply requiring a petition for an extension of time under this paragraph for its timely submission." 37 C.F.R. § 1.136(a)(3).

NOTE: "Amounts of twenty-five dollars or less will not be returned unless specifically requested within a reasonable time, nor will the payer be notified of such amounts; amounts over twenty-five dollars may be returned by check or, if requested, by credit to a deposit account." 37 C.F.R. § 1.26(a).

☒ Please charge, in the manner authorized above, the following additional fees that may be required by this paper and during the entire pendency of this application:

☒ 37 C.F.R. § 1.492(a)(1), (2), (3), and (4) (filing fees)

WARNING: Because failure to pay the national fee within 30 months without extension (37 C.F.R. § 1.495(b)(2)) results in abandonment of the application, it would be best to always check the above box.

- ☐ 37 C.F.R. § 1.492(b), (c) and (d) (presentation of extra claims)

NOTE: Because additional fees for excess or multiple dependent claims not paid on filing or on later presentation must only be paid or these claims cancelled by amendment prior to the expiration of the time period set for response by the PTO in any notice of fee deficiency (37 C.F.R. § 1.492(d)), it might be best not to authorize the PTO to charge additional claim fees, except possible when dealing with amendments after final action.

- ☒ 37 C.F.R. § 1.17 (application processing fees)
- ☒ 37 C.F.R. § 1.17(a)(1)-(5) (extension fees pursuant to § 1.136(a).
- ☐ 37 C.F.R. § 1.18 (issue fee at or before mailing of Notice of Allowance, pursuant to 37 C.F.R. § 1.311(b))

NOTE: Where an authorization to charge the issue fee to a deposit account has been filed before the mailing of a Notice of Allowance, the issue fee will be automatically charged to the deposit account at the time of mailing the notice of allowance. 37 C.F.R. § 1.311(b).

NOTE: 37 C.F.R. § 1.28(b) requires "Notification of any change in loss of entitlement to small entity status must be filed in the application . . . prior to paying, or at the time of paying . . . issue fee." From the wording of 37 C.F.R. § 1.28(b): (a) notification of change of status must be made even if the fee is paid as "other than a small entity" and (b) no notification is required if the change is to another small entity

- ☒ 37 C.F.R. § 1.492(e) and (f) (surcharge fees for filing the declaration and/or filing an English translation of an International Application later than 30 months after the priority date)


SIGNATURE OF PRACTITIONER

James W. McKee

(type or print name of practitioner)

FAY, SHARPE, FAGAN, MINNICH & McKEE, LLP
1100 Superior Avenue, Seventh Floor

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Customer No.:

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JC05 Rec'd PCT/PTO 1 7 APR 2001
PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:)	Examiner: Unknown
ELLIOTT, Nicholas P., et al.)	
)	Art Unit: Unknown
Serial No.: Unknown)	
)	
Filed: herewith)	
)	
For: VERIFICATION METHOD)	
)	
Date of Last Office Action:)	
Not Applicable)	
)	
Attorney Docket No.:)	
UDL 2 0011)	

Cleveland, Ohio 44114
April 17, 2001

Assistant Commissioner For Patents
Washington, D.C. 20231

PRELIMINARY AMENDMENT

Dear Sir:

Prior to calculation of the filing fee, please enter the following amendments to the claims that are presented in the ANNEXES to the International Preliminary Examination Report Form (PCT/IPEA/409) that is being submitted concurrently herewith.

In the Claims:

Please amend claims 3, 4, 5, 6, 9, 10, 13, and 14 without prejudice to the subject matter recited therein. The claims are being amended for the sole purpose of removing the multiple claim dependencies thus eliminating the filing fee surcharge that would otherwise have been necessary had the claims not been amended.

3. (Amended) A method according to claim 1, wherein the public data (8) includes a batch number.

4. (Amended) A method according to claim 1, wherein the public data (8) includes date information.

5. (Amended) A method according to claim 1, wherein the private data (12) includes an item number.

6. (Amended) A method according to claim 1, wherein said public data (8) and said security code (10) is incorporated into the design printed onto the goods as reversed out characters, blends or tints.

9. (Amended) A method according to claim 7, wherein the public data (8) includes date information.

10. (Amended) A method according to claim 7, wherein said public data (8) and said security code (10) is incorporated into the design printed onto the goods as reversed out characters, blends or tints.

13. (Amended) Goods according to claim 11, wherein the public data (8) includes date information.

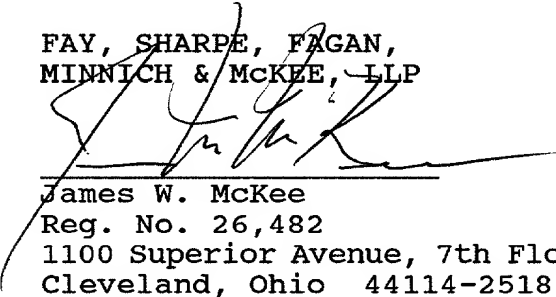
14. (Amended) Goods according to claim 11, wherein said public data (8) and said security code (10) is incorporated into the design printed onto the goods as reversed out characters, blends or tints.

REMARKS

Entry of the foregoing claim amendments is respectfully requested.

Respectfully submitted,

FAY, SHARPE, FAGAN,
MINNICH & MCKEE, LLP



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(216) 861-5582

CERTIFICATE OF MAILING

I hereby certify that this PRELIMINARY AMENDMENT is being deposited with the United States Postal Service via EXPRESS MAIL in an envelope numbered EL852783340US and addressed to: Assistant Commissioner of Patents, Washington, D.C. 20231, on April 17, 2001.



Georgeen B. George

Encl.: Version with Markings to Show Changes Made

VERSION WITH MARKINGS TO SHOW CHANGES MADE

3. (Amended) A method according to claim 1 [or claim 2], wherein the public data (8) includes a batch number.

4. (Amended) A method according to claim 1 [any one of the preceding claims], wherein the public data (8) includes date information.

5. (Amended) A method according to claim 1 [any one of the preceding claims], wherein the private data (12) includes an item number.

6. (Amended) A method according to claim 1 [any one of the preceding claims], wherein said public data (8) and said security code (10) is incorporated into the design printed onto the goods as reversed out characters, blends or tints.

9. (Amended) A method according to claim 7 [or claim 8], wherein the public data (8) includes date information.

10. (Amended) A method according to claim [any one of claims] 7 [to 9], wherein said public data (8) and said security code (10) is incorporated into the design printed onto the goods as reversed out characters, blends or tints.

13. (Amended) Goods according to claim 11 [or claim 12], wherein the public data (8) includes date information.

14. (Amended) Goods according to claim [any one of claims] 11 [to 13], wherein said public data (8) and said security code (10) is incorporated into the design printed onto the goods as reversed out characters, blends or tints.

VERIFICATION METHOD

The present invention relates to a verification method and in particular, but not
5 exclusively, to a method of verifying products to ensure that they are genuine and not
counterfeit. The invention also relates to a method of marking goods for verification
purposes and to goods marked for verification purposes.

The problem of counterfeiting is enormous and affects a wide range of goods including,
for example, pharmaceuticals and spare parts for aircraft. Counterfeiting is not only bad
10 for the producer of genuine goods, resulting in lost sales and possible damage to
reputation and goodwill, but can also result in danger to the public if the counterfeit goods
are not up to the quality of the genuine goods. For example, counterfeit pharmaceuticals
may be ineffective or contain harmful substances and counterfeit aircraft parts may fail
during use.

15 The sophistication of counterfeiting methods is such that it is often difficult or impossible
for the consumer, wholesaler, retailer, importer or distributor to tell whether the goods
are genuine or counterfeit, and usually there is no way of verifying the authenticity of the
goods.

WO 80/02757 describes a process for protecting sound recordings against counterfeiting.
20 The sound recording carriers are marked with a first data set and a second data set that
is related to the first data set. An inspection device is provided, which determines whether
the required relationship between the data sets applies.

US 5,768,384 describes a system for identifying, authenticating and tracking
manufactured articles. A label containing information relating to the articles is printed
25 with an encrypted bar code developed from some or all of that information. In order to
ascertain whether the article is genuine, the bar code is scanned and the encrypted
information is retrieved and compared against information on the associated documents.

It is an object of the invention to provide a verification method and a method of marking
goods for verification purposes that mitigates at least some of the aforesaid problems.

According to the present invention there is provided a method of verifying the authenticity of goods, wherein a set of public data and a security code are applied to the goods, said security code having been derived by means of a predetermined encryption algorithm from said public data applied to the goods and a plurality of private data sets held by a verifier
5 and, upon receiving a request for verification, each private data set is entered into said predetermined encryption algorithm together with the public data applied to the goods to generate a list of verification codes, and said list of verification codes is compared with the security code applied to the goods to assess the authenticity of goods.

The set of public data and the security code may be applied to the goods themselves or
10 to packaging for the goods and the invention as defined by claim 1 is intended to include both of these possibilities.

The method allows the authenticity of the goods to be verified very quickly and simply, for example by means of a telephone call to the verifier. Counterfeiting of the goods is made very difficult by the fact that each goods item carries a unique security code number.
15 The security code can be applied to the goods by ordinary printing processes at minimal cost. The need for expensive security devices such as holograms is avoided.

The verifier may be either the manufacturer or any other body authorised by the manufacturer and the term "verifier" as used in the claims is intended to include any such body.

20 The private data may be related to public data, for example to batch number, so enabling the verifier to assign different sets of private data to different batches of products. Then, when a request for verification is received, the verifier can select the appropriate set of private data for the particular goods for which verification has been requested.

The use of private data in addition to the public data applied to the goods increases the
25 security of the encryption process, making it more difficult to counterfeit the goods.

Each set of private data may be unique for each goods item, enabling the item number to be identified. This can help the verifier to track the activities of counterfeiters.

Each set of private data may be unique for each goods item, enabling the item number to be identified. This can help the verifier to track the activities of counterfeiters.

The public data may include a batch number and/or date information, for example the expiry date or the manufacturing date and time.

- 5 The private data may include an item number, allowing the verifier to identify the goods item in question, or it may be a random or pseudo-random number.

Advantageously, the public data and the private data is applied to the goods by means of a digital printing process and is incorporated into the design printed onto the goods. This makes it more difficult for the goods to be counterfeited using plate-based printing techniques.

10

Advantageously, the public data and the private data is incorporated into the design printed onto the goods as reversed out characters, blends or tints. This makes it more difficult for the goods to be counterfeited using over-printing or over-coding techniques.

According to a further aspect of the invention there is provided a method of marking goods to enable the authenticity of those goods to be verified, wherein a set of public data and a security code are applied to the goods, said security code having been derived from said public data by means of a predetermined encryption algorithm.

15

According to a further aspect of the invention there are provided goods marked for verification purposes, each of said goods including a set of public data and a security code applied to the goods, said security code having been derived from said public data by means of a predetermined encryption algorithm.

20

Embodiments of the invention will now be described by way of example with reference to the accompanying drawings, in which:

Fig. 1 is a perspective view of a medicine packet that has been marked for verification purposes,

25

Fig. 2 represents schematically a method of marking goods for verification purposes, and

Fig. 3 represents schematically a method of verifying the marked goods.

An example of a product, in this case a medicine packet 2, that has been marked for verification purposes is shown in Fig. 1. In the usual way, the packet has been marked by the manufacturer with information such as the expiry date 4, which in this case includes
5 both the date and a time, and a lot or batch number. This information, which is printed on the packet in such a way that it can be read by the public, will be referred to hereinafter as the "public data" 8. This public data 8 may be either unique to each packet (for example, an item number may be included or the expiry date may include a time code based on the exact time of manufacture), or alternatively all packets manufactured in the
10 same batch may carry identical public data.

In addition, the packet carries a security code 10. The security code 10 is unique to that packet and every packet therefore carries a different security code. The provision of a unique security code provides a first obstacle to counterfeiting, since printing different codes on each pack demands adaptable printing techniques and the provision of identical
15 security codes on any two packets will immediately indicate that the goods are not genuine.

The usual method of marking packets with information that varies from pack to pack, or from batch to batch, is to stamp or print that variable information onto pre-printed packets in a separate printing process. This process is known as over-coding. This method can
20 be copied relatively easily by counterfeiters.

In the packet shown in Fig. 1, counterfeiting is made more difficult by using digital printing techniques to print both the design of the packet (including the product trade mark, any descriptive matter and any graphical elements) and the variable information in a single step. Many well known digital printing techniques may be employed, including
25 for example the INDIGO (TM), XEIKON (TM) and SCITEX (TM) processes. The advantage of using a digital printing process is that because printing takes place under digital electronic control, the printed image can be varied for each individual packet and can be incorporated into the overall design of the pack. This cannot readily be achieved

with traditional plate-based printing processes, since a separate set of printing plates must be prepared for each different image.

- Preferably, the variable information including the public data and the security code is incorporated into the design in such a way that would affect as many plates of a conventional printing process as possible. For example, in the packet shown in Fig. 1 the security code number 10 has been positioned to overlap areas of two different background colours. Further, the variable information has been incorporated into the design as "reversed out" characters, i.e. characters produced by leaving the shapes of those characters unprinted against a background of solid colour so that the base material shows through. This helps to prevent that information being added in a subsequent over-coding process. The effect of this process is illustrated in Fig. 1, the variable information 8,10 being shown as white characters on a coloured background. Alternatively, the characters may be printed as blends or tints, which are also difficult to reproduce using conventional printing processes.
- 15 The security code 10 applied to each packet is derived directly from unique information associated with each pack by means of a secret encryption algorithm. The security code 10 may be derived either from a combination of the public data 8 printed on the packet 2 and private data held by the manufacturer or an authorised verifying organisation, or alternatively it may be derived solely from the public data, if that data is unique. The processes for deriving and verifying the security codes applied to the packets are described below with reference to Figs. 2 and 3.

Fig. 2 illustrates schematically a process for deriving the security codes and applying them to the packets using a combination of the public data 8 printed on the packet 2 and private data 12 held by the manufacturer or an authorised verifying organisation. The public data 8 consists for example of the batch number 6 and the expiry date 4. This data need not be unique. The private data 12 is not printed on the packet and is held either by the manufacturer or an authorised verifying organisation. The private data 12 is unique and may represent, for example, the item number of each packet in a given batch, or may be a random or pseudo-random number.

The security code 10 for each packet is derived automatically during the printing process by subjecting the private data 12 and the public data 8 to an encryption process 14, such as a one-way hash function or a merge digest, as described in Applied Cryptography, second edition by Bruce Schneier, page 30, section 2.4 "one-way hash functions" (John Wiley & Sons, Inc., 1996) ISBN 0471117091. This generates a unique security code 10, which is printed onto the packet 2 together with the public data 8 by means of a digital printer 18.

No record is kept of the security codes 10. However, a data record 20 is kept of the public data 8 and the associated private data 12 used in the encryption process. This data record 20 is supplied to the verifying authority, for example on a floppy disk or by electronic data transfer.

The verification process is illustrated schematically in Fig. 3. The verifying authority, which may be the manufacturer or an outside body authorised by the manufacturer, uses an identical encryption algorithm 14 to that used during printing and is supplied with the data record 20 of public data 8 and private data 12. When the verifying authority receives a request for verification, for example from a member of the public who has purchased the goods, the requester is asked to provide the public data 8 printed on the packet 2. This public data 8 is entered into the encryption algorithm 14 together with the private data 12 associated with that public data 8, as retrieved from the data record 20. This generates a list 24 of possible verification codes and the private data associated with each of those codes.

The requester is then asked to provide the security code 10 printed on the packet 2 and this code 10 is compared 26 with the list 24 of verification codes generated by the encryption algorithm 14. If that security code 10 matches a verification code on the list 24, the authenticity of the goods is verified 28; if a match is not found, the authenticity of the goods is denied.

The verifier may keep a log 30 of all requests for verification, which stores the public and private data for each item that has been verified. During the verification step, the log 30 may be checked to see whether a request for verification has been received previously in

respect of that item. If so, verification may be denied since this suggests that the item has been copied.

The log 30 may also contain other information 32, for example the date and time of the request and the identity and geographical location of the requester. If two requests for
5 verification are made for the same item, it may be possible to discount any likelihood of the item being counterfeit, for example if the requests are made first by a retail pharmacist and subsequently by a customer of that pharmacist.

A request for verification may be made by post, fax or telephone or electronically, for example by accessing a Web Site.

10 As mentioned above, the security code 10 applied to each packet 2 may be derived solely from the public data 8 printed on the packet 2, if that data is unique. For example, the public data may include a unique item number, the exact production time or a random number in addition to the normal batch number 6 and expiry date information 4. The security code 10 is derived directly from this combination of unique and non-unique data
15 and by means of the encryption algorithm 14.

During the verification process, the requester provides the public data 8 printed on the pack and this is entered into the encryption algorithm by the verifier, thereby generating a verification code. The requester then provides the security code 10 printed on the pack and, if this matches the verification code generated by the verifier, the authenticity of the
20 goods is confirmed. If the security code provided by the requester does not match the verification code, authenticity is denied. As in the process described above, a log may be kept of requests for verification and details of the requester.

The verification process is not limited to pharmaceuticals or to goods sold in printed packs and is equally applicable to goods such as aircraft parts, on which the public data
25 8 and the security code 10 may be marked directly, for example by stamping. In the case of goods sold in printed packs, the use of digital printing methods is not essential, although it is preferred as this provides certain additional advantages as discussed above.

It is not essential that the public data from which the security code is derived includes either the product batch number or date information. The public data may be entirely random or pseudo-random, or may be derived from the batch and item numbers, for example by means of a two-way algorithm.

- 5 The public data and the security code can also be amalgamated into a single number according to a predetermined algorithm. In order to verify the authenticity of the goods, the requester only has to provide that number. The verifier can automatically separate the public data from the security code and then use the public data extracted from that number to generate a verification code, which can then be compared with the security code
- 10 extracted from the number provided on the goods. Verification can thus be achieved in a single step.

Claims

1. A method of verifying the authenticity of goods wherein a set of public data is applied to the goods and, upon receiving a request for verification, the public data applied to the goods is entered into a predetermined encryption algorithm to generate a verification code; characterised in that:
 - a security code (10) is applied to the goods, said security code (10) having been derived by means of a predetermined encryption algorithm (14) from said public data (8) applied to the goods and a plurality of private data sets (12) held by a verifier;
 - and, upon receiving a request for verification, each private data set (12) is entered into said predetermined encryption algorithm (14) together with the public data (8) applied to the goods to generate a list of verification codes (24), and said list of verification codes (24) is compared with the security code (10) applied to the goods to assess the authenticity of goods.
2. A method according to claim 1, wherein the verifier maintains a log (30) of requests for verification and, upon receiving a request for verification, compares the public data (8) applied to the goods with the data held in the log (30) to assess the authenticity of goods.
3. A method according to claim 1 or claim 2, wherein the public data (8) includes a batch number.
4. A method according to any one of the preceding claims, wherein the public data (8) includes date information.
5. A method according to any one of the preceding claims, wherein the private data (12) includes an item number.
6. A method according to any one of the preceding claims, wherein said public data (8) and said security code (10) is incorporated into the design printed onto the goods as reversed out characters, blends or tints.

7. A method of marking goods to enable the authenticity of those goods to be verified, wherein a set of public data is applied to the goods for use in a subsequent verification process; characterised in that a security code (10) is applied to the goods, said security code (10) having been derived by means of a predetermined encryption algorithm
- 5 (14) from said public data (8) applied to the goods and a plurality of private data sets (12) held by a verifier.
8. A method according to claim 7, wherein the public data (8) includes a batch number.
9. A method according to claim 7 or claim 8, wherein the public data (8) includes
- 10 date information.
10. A method according to any one of claims 7 to 9, wherein said public data (8) and said security code (10) is incorporated into the design printed onto the goods as reversed out characters, blends or tints.
11. Goods marked for verification purposes, each of said goods including a set of
- 15 public data applied to the goods for use in a subsequent verification process; characterised in that each of said goods includes a security code (10) applied to the goods, said security code (10) having been derived by means of a predetermined encryption algorithm from said public data (8) applied to the goods and a plurality of private data (12) sets held by a verifier.
- 20 12. Goods according to claim 11, wherein the public data (8) includes a batch number.
13. Goods according to claim 11 or claim 12, wherein the public data (8) includes date information.
14. Goods according to any one of claims 11 to 13, wherein said public data (8) and said security code (10) is incorporated into the design printed onto the goods as reversed
- 25 out characters, blends or tints.

Fig. 1

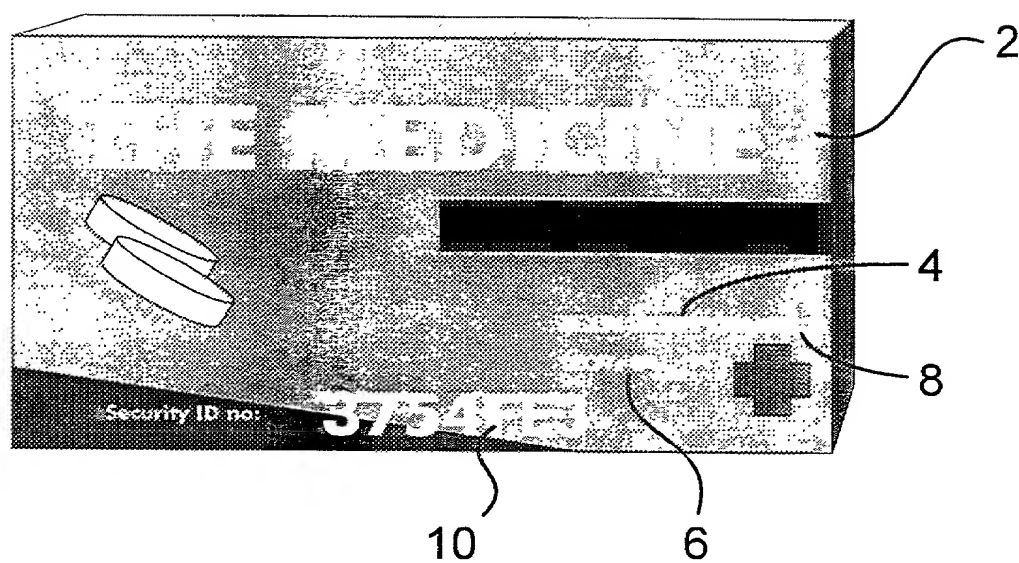
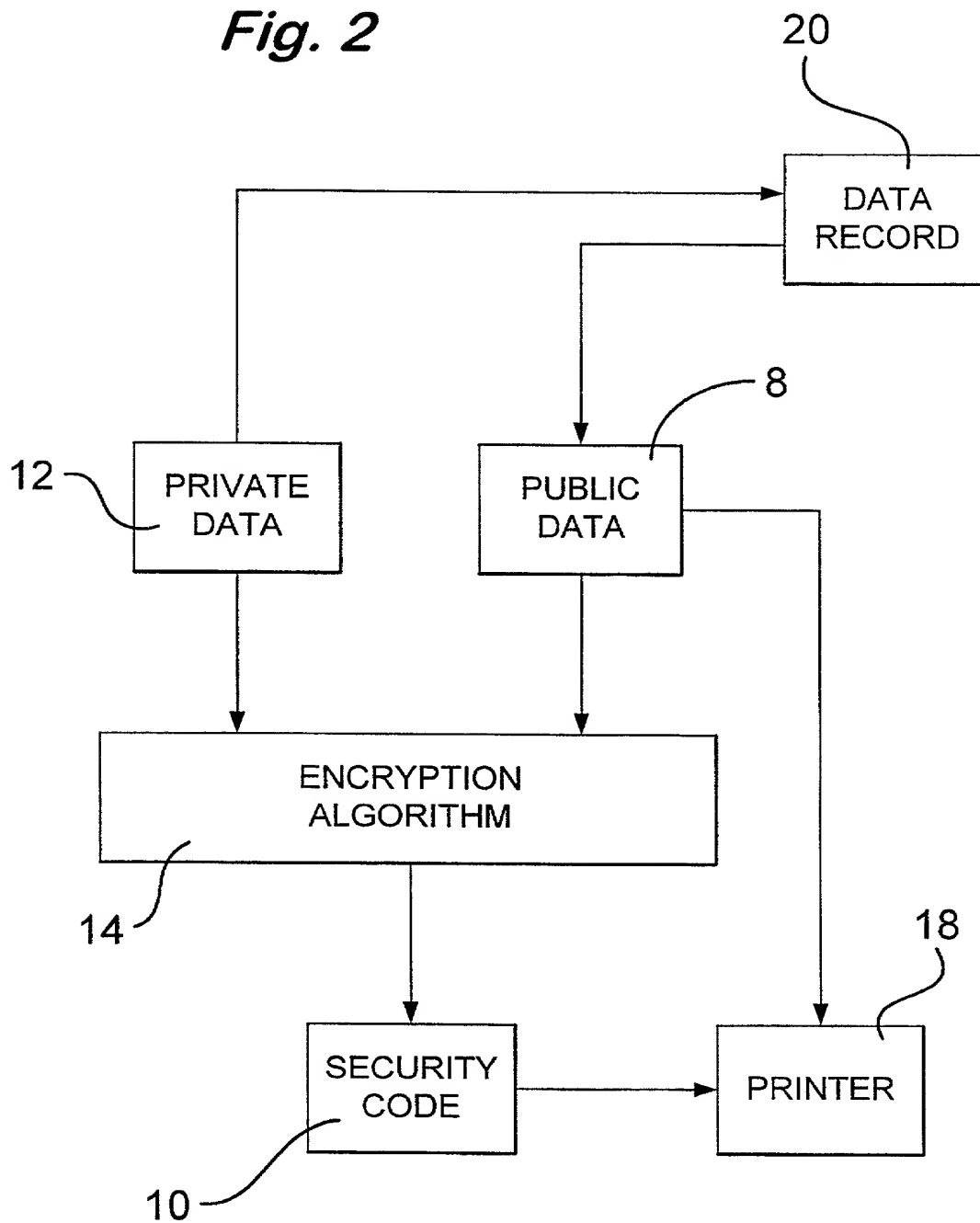
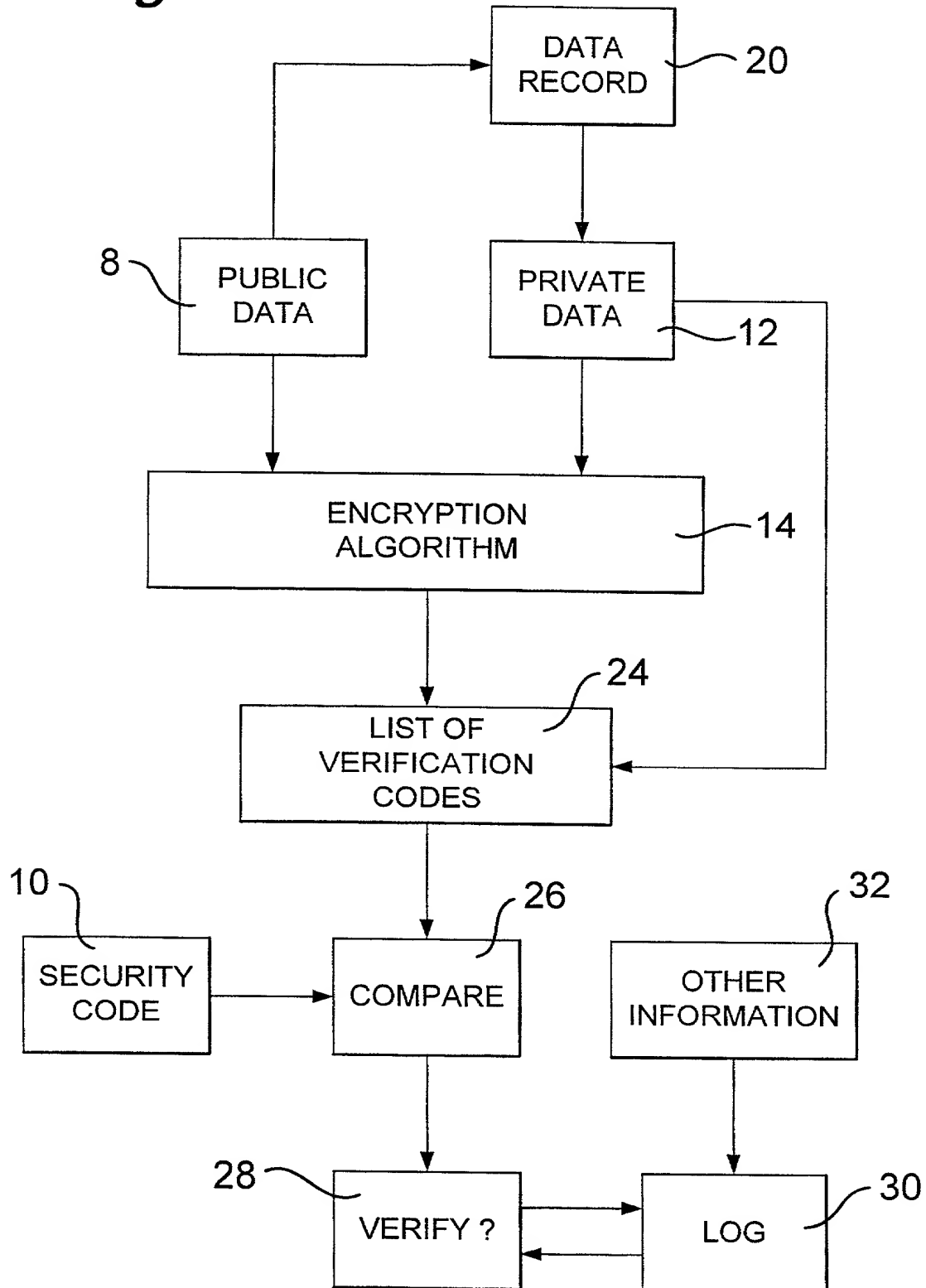


Fig. 2

3/3

Fig. 3

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(37 CFR 1.63)☐Declaration
Submitted
with Initial
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OR

☒Declaration
Submitted after Initial
Filing (37 CFR 1.16 (e))
(required)

Attorney Docket Number

UDL 2 0011

First Named Inventor

ELLIOTT, Nicholas P.

COMPLETE IF KNOWN

Application Number

09 / 807,675

Filing Date

April 17, 2001

Group Art Unit

Examiner Name

As a below named inventor, I hereby declare that:

My residence, mailing address, and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

VERIFICATION METHOD

(Title of the Invention)

the specification of which

☐

is attached hereto

OR

☒

was filed on (MM/DD/YYYY)

04/17/01

as United States Application Number or PCT International

Application Number

09/807,675

and was amended on (MM/DD/YYYY)

(if applicable).

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment specifically referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56, including for continuation-in-part applications, material information which became available between the filing date of the prior application and the national or PCT international filing date of the continuation-in-part application.

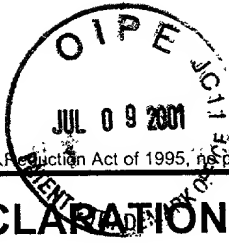
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				YES	NO
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			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Additional foreign application numbers are listed on a supplemental priority data sheet PTO/SB/02B attached hereto:

[Page 1 of 2]

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NAME OF SOLE OR FIRST INVENTOR: ☐ A petition has been filed for this unsigned inventorGiven Name (first and middle [if any]) Nicholas Paul Family Name or Surname ElliottInventor's Signature [Signature] Date 25/6/01Residence: City Ringstead, Kettering State Northants Country GB Citizenship GBMailing Address Shoestring, Woodford MillCity Ringstead, Kettering State Northants ZIP NN14 4DU Country GBNAME OF SECOND INVENTOR: ☐ A petition has been filed for this unsigned inventorGiven Name (first and middle [if any]) David William Family Name or Surname ElliottInventor's Signature [Signature] Date 19/6/2001Residence: City Raunds State Northants Country GB Citizenship GBMailing Address Rosedene, 2 Coleman StreetCity Raunds State Northants ZIP NN9 6NJ Country GB☐ Additional inventors are being named on the _____ supplemental Additional Inventor(s) sheet(s) PTO/SB/02A attached hereto.

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Application Number	09/807,675
Filing Date	April 17, 2001
First Named Inventor	ELLIOTT, Nicholas P.
Title	VERIFICATION METHOD
Group Art Unit	Unknown
Examiner Name	Unknown
Attorney Docket Number	UDL 2 0011

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Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96).

SIGNATURE of Applicant or Assignee of Record

Name Nicholas Paul Elliott

Signature 

Date 25/6/01

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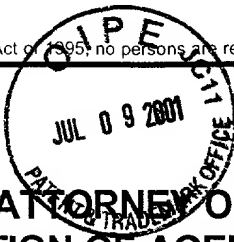
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Name

David William Elliott

Signature

Date

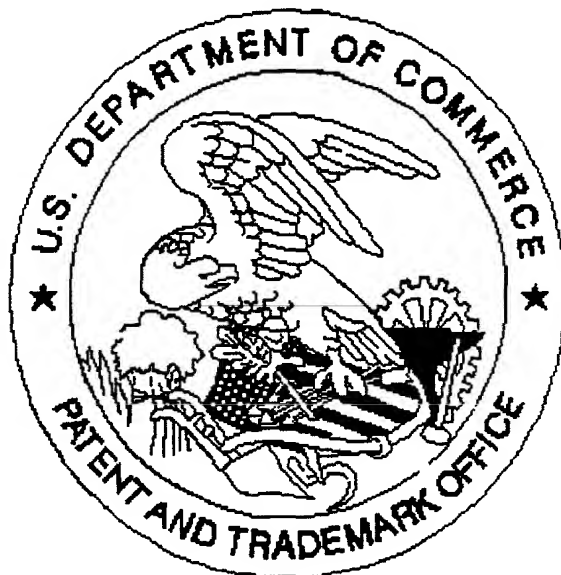
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